Symmetrical Partitioning of the Row in Schoenberg's Wind Quintet, Op. 26

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Schoenberg completed his Wind Quintet, Op. 26, in August 1924, after having worked on the manuscript since April 1923. It is one of his earliest twelve-tone compositions. Felix Greissle stated that it was "the first large work in which Schoenberg has substantiated the laws of compositions with twelve tones."[1] The first performance was on September 16, 1924.

The Wind Quintet is in four movements: an opening sonata form, a scherzo and trio, a slow movement, and a concluding rondo. The third movement is a broad ternary form with a substantial coda section. The entire quintet is based on the following tone row:

E^{b}	G	A	B	$C^{\#}$	C	B^{b}	D	E	$F^{\#}$	$G^{\#}$	F
0	4	6	8	10	9	7	11	1	3	5	2

As can be noted quickly from the pitch class numbers, the two hexachords of the row each contain five notes of a whole tone scale plus one note not in the scale. From the matrix formed by this row (see Example 1), it is evident that every row form is divided into hexachords of primarily odd or even

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[1]Arnold Schoenberg, Quintett fuer Floete, Oboe, Klarinette, Horn und Fagott, Op. 26, introductory notes by Felix Greissle (Vienna: Universal-Edition, 1925), p. ii.

Example 1. Matrix of Row for Quintet, Op. 26.

0	4	6	8	10	9	7	11	1	3	5	2
8	0	2	4	6	5	3	7	9	11	1	10
6	10	0	2	4	3	1	5	7	9	11	8
4	8	10	0	2	1	11	3	5	7	9	6
2	6	8	10	0	11	9	1	3	5	7	4
3	7	9	11	1	0	10	2	4	6	8	5
5	9	11	1	3	2	0	4	6	8	10	7
1	5	7	9	11	10	8	0	2	4	6	3
11	3	5	7	9	8	6	10	0	2	4	1
9	1	3	5	7	6	4	8	10	0	2	11
7	11	1	3	5	4	2	6	8	10	0	9
10	2	4	6	8	7	5	9	11	1	3	0

A B C D

pitch class numbers, corresponding to the whole tone structure of the hexachords. Although Schoenberg does not make use of its semi-combinatorial properties, the row is hexachordally combinatorial at P_0 and I_{11}, P_1 and I_0, etc. The row is not prime combinatorial (that is, no transposition of the first hexachord of P_0 will produce its second hexachord). There are other invariant aspects of the row, however, that result from the fact that the first five notes of each hexachord (the five whole-tone scale notes) are transpositionally equivalent. Notes of order numbers 0-4 of P_0 can be found as order numbers 6-10 of P_6, 6-10 of P_0 can be found as 0-4 of P_7, etc. Example 2 shows the number of invariants to be expected under transposed inversion. The semi-combinatoriality of the row is evidenced by the lack of invariants at I_{11}. Five invariants are found at I_4 and I_6. Because of the transpositional equivalence of the first five notes of each of the two hexachords of the row, five-note segments of corresponding prime forms and five-note segments of corresponding I forms retain the same order. Examples of these invariant orderings have been marked with brackets in

Example 2. Inversional Invariants.

Transpositional Level of Inversion (Set Type 0 2 3 4 6 8)

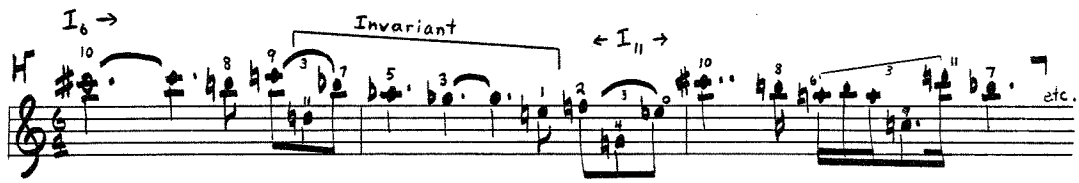
I_0	I_1	I_2	I_3	I_4	I_5	I_6	I_7	I_8	I_9	I_{10}	I_{11}
4	2	4	2	5	2	5	2	4	2	4	0

Number of Invariants

the matrix of Example 1.

Schoenberg exploits this invariant ordering in mm. 48-50 in the oboe line (see Example 3). In m. 48 the oboe takes

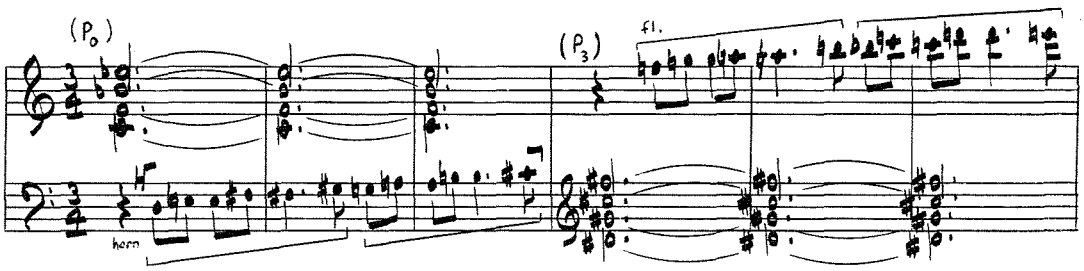
Example 3. Quintet, III, mm. 48-50.



up a linear presentation of I_6 begun previously by the clarinet in m. 46. Upon completing the five-note segment D-B^{b}-A^{b}-G^{b}-E (11 7 5 3 1) that I_6 holds in common with I_{11} (see Example 1), the oboe continues with notes from I_{11}: F-G-E^{b}-C$^{\#}$-B-A-C (2 4 0 10 8 6 9), thus using the invariant segment to shift smoothly from one row form to another.

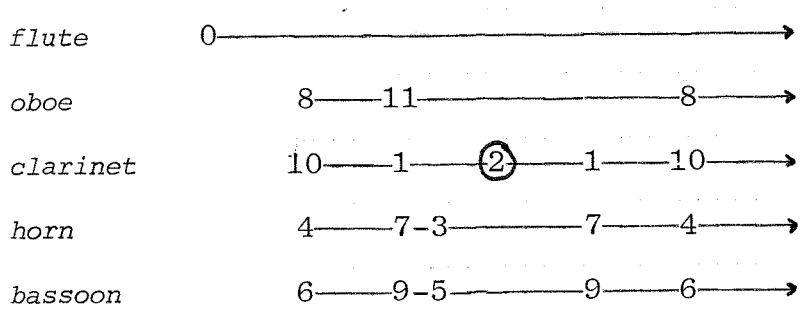
The whole tone differentiation or "odd-even" dichotomy of the hexachords is not used often by Schoenberg in this movement to produce explicit statements of the whole tone scale. However, such linear statements do appear in other movements of the Quintet, such as in the horn and flute lines from the scherzo shown in Example 4.

Example 4. Quintet, II, mm. 400-405.



The final chord of the third movement is a whole tone structure containing the last five notes of R_0 (The final three measures are, in fact, constructed to form an interesting alternation of "even" and "odd" whole tone collections. This can be seen in Example 5, in which the voice

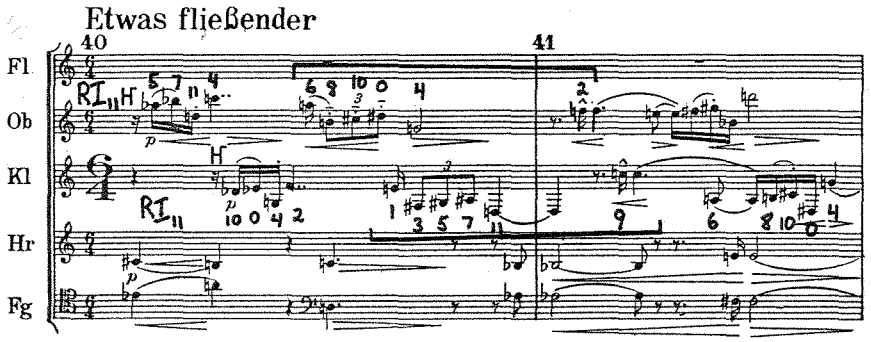
Example 5. P_0-R_0 Voice-leading, Final Chord.



leading of the final cadence is graphed. The central neighbor note 2 is the pivotal note ending P_0 and beginning R_0.

Although each hexachord of the row contains only five members of a whole tone scale, the "extra" note in each hexachord is positioned in the row so that repeated statements of any given row form will produce an overlapping sequence of hexachords having all six notes of each whole tone scale in succession. For example, beginning with pitch class number 9 in P_0 (see the matrix in Example 1), by repeating the row, we obtain the succession 9 7 11 1 3 5 2 0 4 6 8 10 and so on. This property allows for an even stronger dichotomy of pitch content based on the complementary whole tone scales, an example of which can be observed in the canonic passage for oboe and clarinet, mm. 40-41 (see Example 6). Note how the transpositional

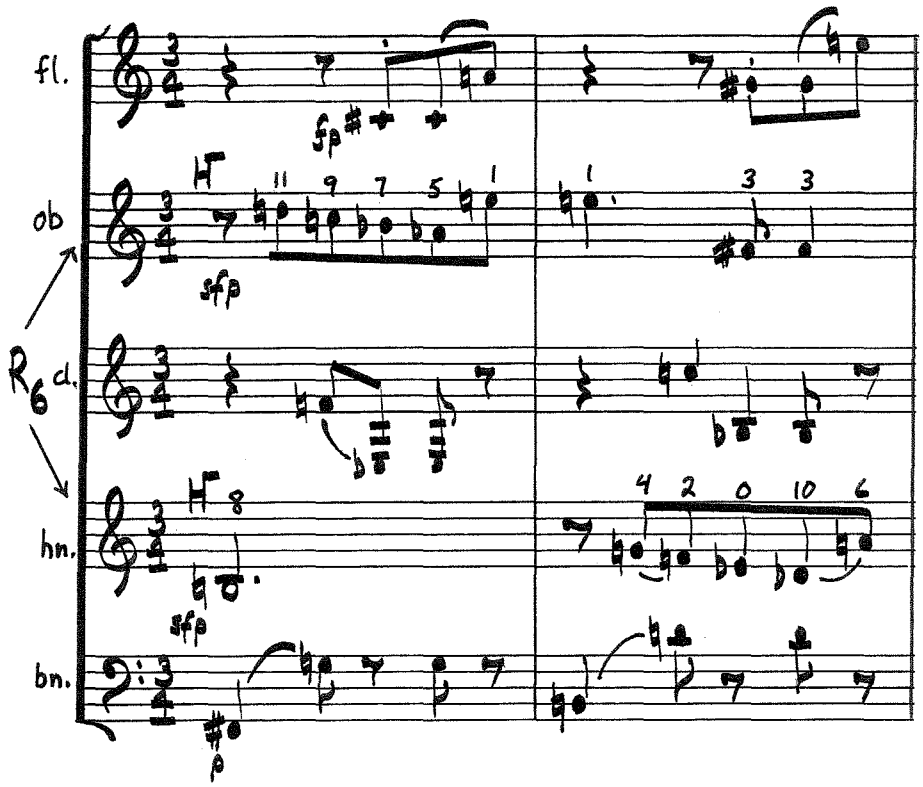
Example 6. Mm. 40-41.



equivalence of the two hexachords of the row allows for strict canon between segments of the same row form (RI_0). Another example of whole tone division occurs at the beginning of the canon between oboe and horn at mm. 61-62. The two canonic voices divide a statement of R_6 (see Example 7).

The row forms employed in the movement have been graphed in Example 8. There are some strong relationships between the row forms used and the form of the movement. The A or main theme section (mm. 1-33) consists entirely of the four basic row forms P_0, I_0, R_0, and RI_0, with the addition of I_5 in mm. 8-15. There are two short sections of freer construction in which the pitch material is not clearly derived from any row form (mm. 20-21 and mm. 32-33). These areas

Example 7. Oboe and Horn Canon.



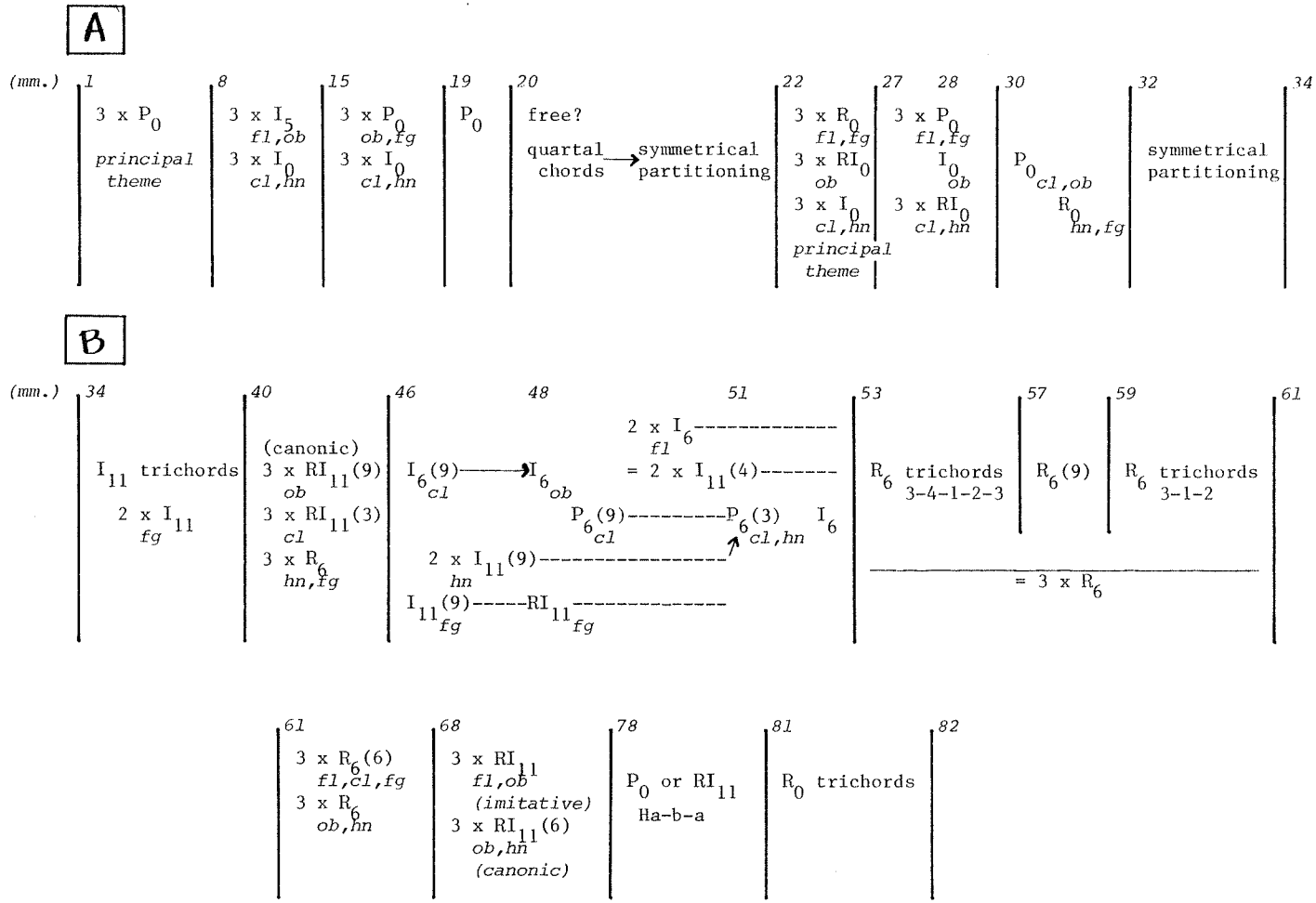
act as dividing or cadential sections. The B section (mm. 34-81) utilizes mainly I_{11}, RI_{11}, P_6, R_6, and I_6. These row forms are used in a less straightforward manner than those used in the A section. In the B section, Schoenberg does not hesitate to begin in the middle of a row form. Where this occurs it has been indicated in the chart of Example 8 by placing the order number of the first pitch in parenthesis (see for example the oboe in m. 40, where RI_{11} begins with order number 9). Schoenberg also divides the row forms into trichords and presents the trichords in a similar way: beginning in the middle of the row, as with R_6 in mm. 53-60. The second A section beginning at m. 82 and the coda at m. 114 return to the row forms used at the beginning. The second A section also contains an extended "free" area in m. 103 that serves, like the corresponding

measures in the first A section (mm. 20-21), as a sort of half cadence between statements of the principal theme. The gradual exclusion of all other row forms besides P_0 and R_0 in the coda seems to indicate that Schoenberg regarded the original form of the row, and indeed the opening five-note segment of P_0, as a reference point that ought to be reached at the conclusion in order to attain a sense of closure. And finally it is interesting that although Schoenberg did not use P_0 and I_{11} combinatorially, I_{11} dominates the B section. Perhaps he was aware of the relationship, even though he did not use it to control vertical content.

Inspection of the graph in Example 8 reveals that row forms often appear three times in succession. This threefold repetition of rows is characteristic of the principal theme of the movement and also in the B section where the principal theme is absent (for example, see mm. 40-46, 53-60, and 61-68). The intitial presentation of the principal theme is stated by the horn in mm. 1-8 accompanied by the bassoon (see Example 9). There are three statements of P_0 divided between the two instruments in these measures. Schoenberg has used a systematic process to partition the horn theme out of the three statements, thereby producing a new twelve-note series that is not related to the original row by transposition or inversion. Example 10a shows P_0 and this horn theme in pitch class notation, with brackets supplied in P_0 to show the partitioning procedure that produces the horn theme. Four notes are partitioned out of each statement of P_0, and each four-note group consists of two parts of symmetrically arranged notes of the two hexachords. The numbering of the brackets in Example 9 indicates the order in which the pairs appear.

When the main theme is restated in the course of the movement, a similar symmetrical partitioning procedure is employed. The themes and the row forms out of which they have been partitioned are shown in Example 10. There are some interesting relationships between statements of the theme partitioned from different row forms. The recapitulation at m. 82 and the flute line at m. 22 (Example 10c and 10e) form the same series of pitch classes and are both partitioned from the R_0 form of the row. Instead of being the actual retrograde of the horn melody in mm. 1-8, however, they present retrograde ordering only within each tetrachord (in the first tetrachord, for example, compare 0 9 7 2 in the horn, Example 10a, with 2 7 9 0 in the flute, Example 10c). This is because the same symmetrical pairs of notes have been extracted from corresponding repetitions of the respective row forms. The same relationship exists between th RI_0-derived flute theme in m. 90 (Example 10f) and the I_0-derived theme in m. 104 (Example 10h). A true retrograde relationship can be seen between the flute line in mm. 22-26 (Example 10c) and its continuation (partitioned

Example 8. Graph of Row Forms, Op. 26.



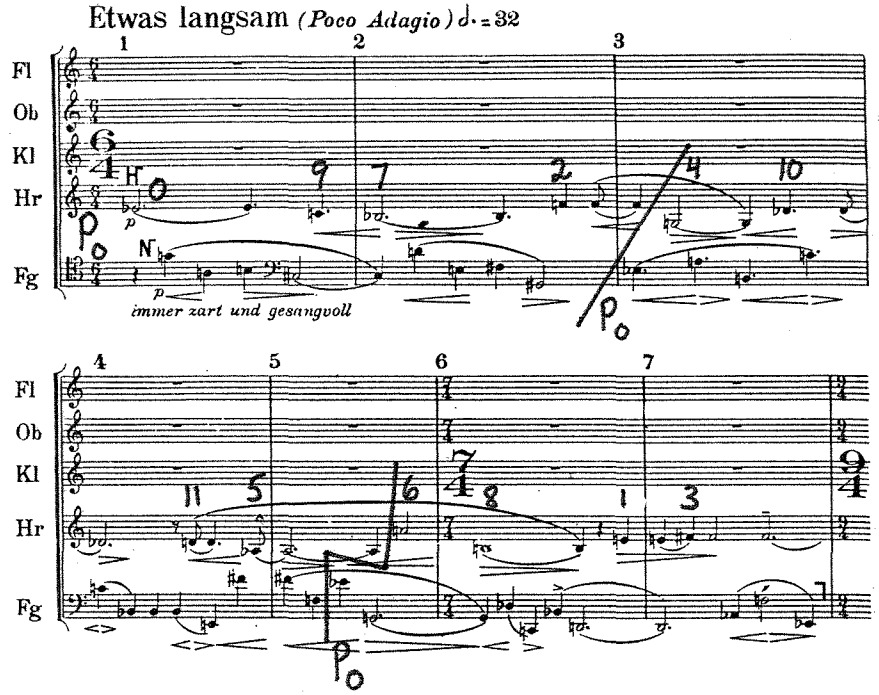
A'

(mm.)	82	89	90	97	101	.102	104	110 111	112	114
	principal theme 3 x R_0 *ob,fg* 3 x I_0 *cl*	I_0	*principal theme* 3 x RI_0 *fl,hn* 3 x RI_5 *ob,cl,fg*	3 x I_0(9) *fl,cl* 3 x P_0(9) *hn,fg*	P_0(6) *fl,ob*	quartal chords → free? symmetrical partitioning	3 x I_0 *fl,cl* 3 x P_0 *hn,fg* *principal theme*	R_0 *fl,ob* RI_{11} tri-chords	2 x R_0 *fl,ob* 2 x P_0 *cl,hn,fg*	

Coda

(mm.)	114	118	122	125	127	131	133	135	138	139
	$I_{0\ fl,ob}$ $P_{0\ cl,fg}$ *(imitative)*	$R_{0\ fl}$ $R_{0\ ob,hn,fg}$ *(imitative)*	I_0	P_0	$R_{0\ fl,cl,fg}$ $RI_{0\ ob,hn}$	P_0	I_0	3 x P_0	R_0	P_0—R_0

Example 9. Mm. 1-7.

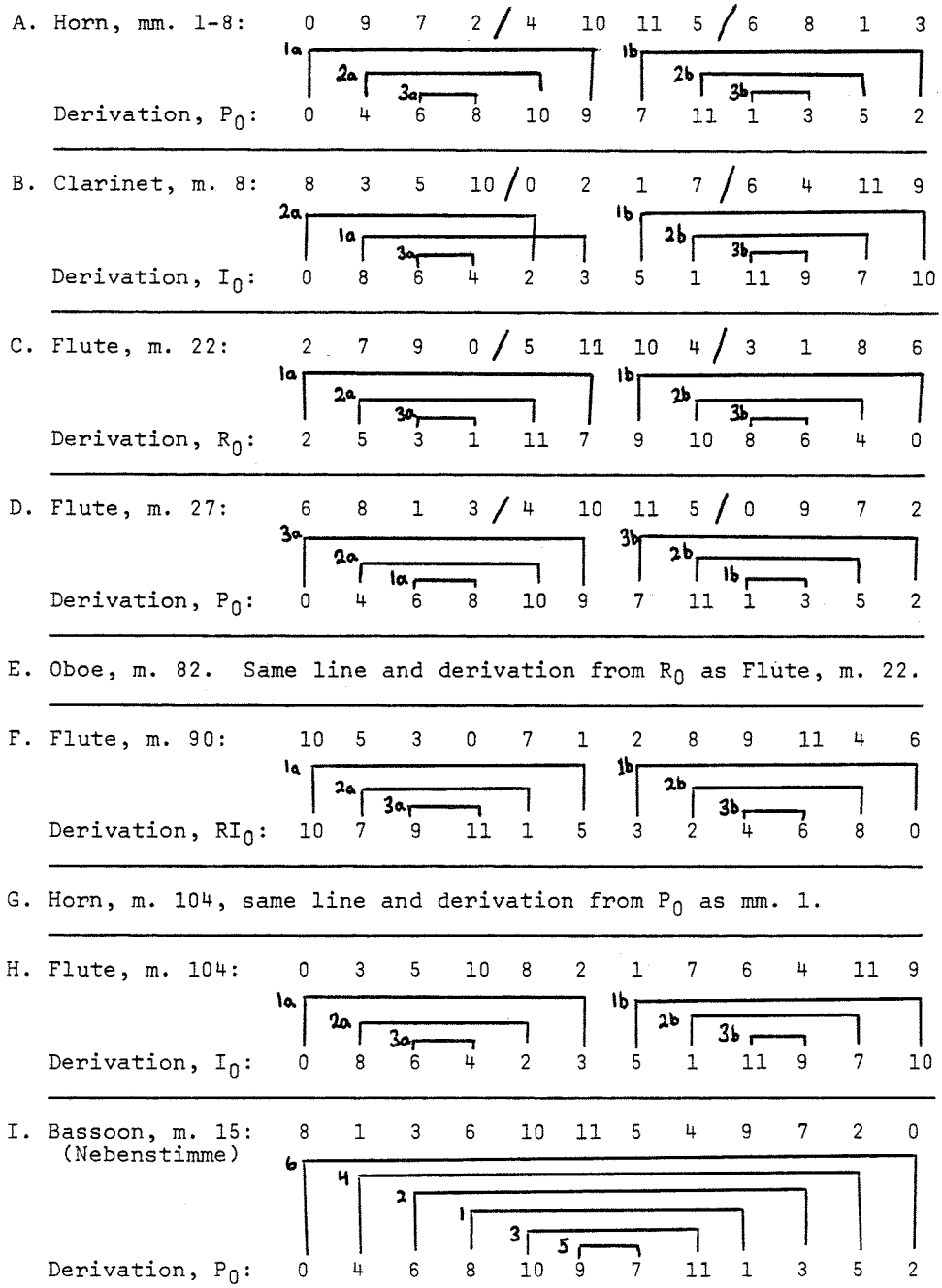


from P_0) in mm. 27-30 (Example 10d). In this case the order in which the symmetrically arranged pairs are extracted is reversed, in addition to the retrograde relationship of the parent rows from which the two themes are derived.

At m. 104 the same partitioning process is activated to produce both the main theme in the horn at its original level (from P_0) and the flute counter subject from I_0 (Example 10a and 10h). Consequently, a strict inversional relationship exists between the two instrumental lines. It is the consistency of the derivational process that creates this relationship. The simple use of P and I forms does not assure such an inversional correspondence.

The partitioning pattern of the clarinet theme in mm. 8-14 (Example 10b) is somewhat different than that found in other statements of the principal theme. Had the usual pattern been followed, the clarinet would have sounded the pitch classes 0 3 5 10 8 2 instead of 8 3 5 10 0 2. The clarinet is forced into a slightly different partitioning of

Example 10. Partitioning of Statements of Main Theme from Row Forms.



I_0 in this case because the E^b (pitch class 0) is already sounding in m. 8 in the bassoon.

A rather distinctive derivational pattern is in evidence in the bassoon, mm. 15-19 (Example 10i). This line is not the principal theme, but a Nebenstimme. It is, however, partitioned from three statements of P_0, taking four notes from each statement. The symmetry shown in Example 10i is striking.

The process of creating thematic lines from symmetrically arranged note pairings can shed some light on the free cadential areas found in the A and A' sections. Example 11 illustrates one of these sections, mm. 31-34. When the notes are taken in the order of their appearance, they form pairs that show a symmetrical structure when mapped onto the original row (P_0). The notes encircled in Example 12 and marked "A" are part of a similar free passage, mm. 20-21. The flute line obviously contains adjacencies not possible in any row form. When mapped onto I_0 in a manner similar to Example 11, however, another symmetrical pattern emerges. Example 13 shows the same procedure applied to the passage at m. 103. The same pairings of notes from P_0 are used in all three of the encircled sections, but in each the order and registral deployment of the pairs is unique.

Admittedly, symmetrical partitioning does not explain every note of these free sections. The quartal chords in m. 20 and mm. 102-3 defy analysis except that any four-note chord consisting of three adjacent perfect fourths can be mapped symmetrically onto one row form as the beginning and ending notes fo the two hexachords of the row. In m. 20 (see Example 12) the chord 0 9 2 7 can be mapped in this manner onto P_0 or R_0, the chord 3 6 8 1 onto I_3 or RI_3, and the chord 3 0 10 5 onto P_3 or R_3.

From the foregoing analysis, it is clear that symmetrical partitioning of the row plays an important role in this movement. Every statement of the principal theme emerges by this process, and the structure of several free, seemingly non-serial sections becomes evident through its application. Symmetrical partitioning is clear evidence that Schoenberg was investigating symmetry as a technique for employing the twelve-tone row in his early serial compositions.[2]

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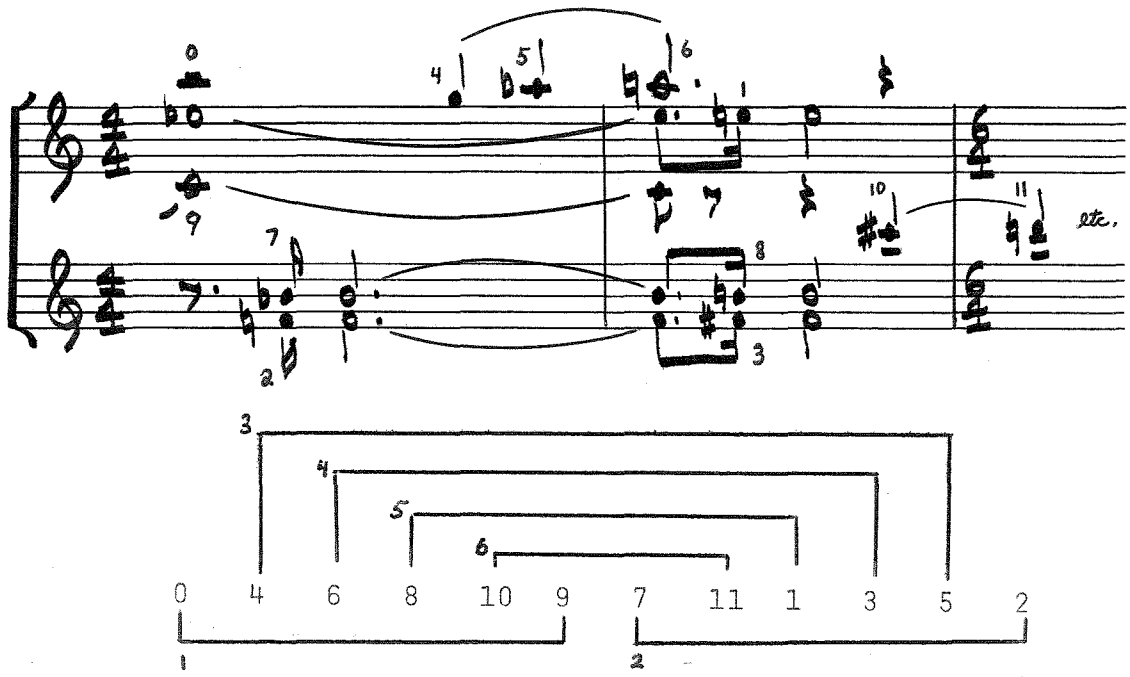
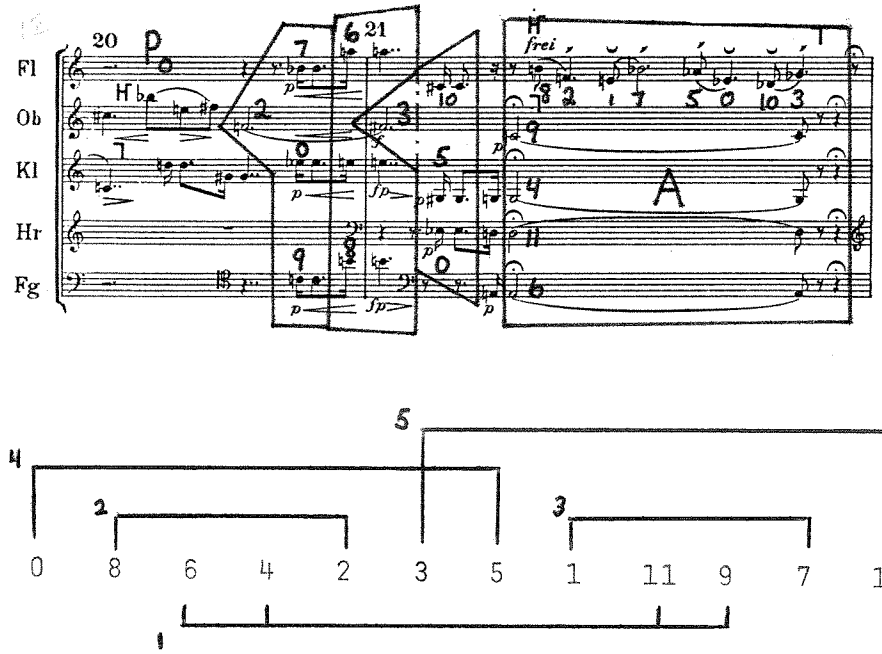
[2]For an example of a different sort of symmetry in early serial works by Schoenberg, see Robert Schallenberg, "Aspects of Pitch Emphasis in Some Twelve-Tone Works of Arnold Schoenberg," (D.M.A. dissertation, University of Illinois at Urbana-Champaign, 1963), pp. 35-39. Schallenberg demonstrates rather striking temporal and registral symmetries in cadential areas of the Suite, Op. 25.

Example 11. "Free" Section, mm. 32-34, and Derivation from P_0.



Example 12. "Free" Section, mm. 20-21, and Derivation from I_0.



Example 13 "Free" Section, m. 103, and Derivations from P_0.